

Water Quality Data Elements for Reporting Results of Population/Community Biological Assessments Version 3.4

Data Elements	Definition
1.0 Contact Information Module	See Chemical/Microbiology Data Elements
2.0 Results Module	
2.1 Result/Endpoint Value	Reportable numerical measure of the result for the biological organism, or other characteristic, being analyzed.: index score, metric value, density, biomass, etc.
2.1.1 Measure Name	(Alternate Names: Parameter, Taxon, Metric, Index) Metric = measure of biological attribute (e.g. EPT, % lithophils, % Sensitive Diatoms) index = aggregated number used to judge condition (e.g. IBI, RBP, RIVPACS)
2.1.2 Unit of Measure	The name of the determinate quantity for a standard of measurement used for measuring dimension, capacity, or amount of something. e.g. count, mg
2.1.3 Confidence Intervals	The values representing the lowest and highest confidence level
2.1.4 Confidence Level	The percent confidence associated with the confidence levels; i.e., 95%, 99%
2.1.5 Method of Comparison	The basis for comparison that yielded the sample result or endpoint. For example, compared to reference condition, upstream sample.
2.1.6 Statistical Methods Used	Statistical test(s) used to obtain result or endpoint value (e.g., t-test, ANOVA, ordination or other multivariate method)
2.1.7 Modifications to method if any	Text describing alterations to published methods; metric substitution, etc.
2.1.8 Method citation	Reference citation (preferably published) for assessment method or metric calculation (including formula) used
3.0 Reasons for Sampling Module	
3.1 Reason for Sample Collection	A text field to include such reasons as: (a) Reconnaissance/Occurrence Survey (b) Trend analysis (c) Permit Compliance (d) Pollution Event (e) Storm Event (f) Research (g) Regulatory benchmark (h) Bioaccumulation (i) Deposition (j) Other entries as applicable
3.2 Sampling Design Used	Type of sampling design used to identify sampling sites: probabilistic, stratified-random, targeted, systematic
3.3 Data and/or Measurement Quality Objectives	Brief summary of MQOs in relation to biological analysis; for example, sample precision, RSD ≤ 20%.

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4.0 Date/Time Module	
4.1 Sample Collection Start Date	The calendar date when collection of the sample was started, reported as 4-digit year, 2-digit month, and 2-digit day in YYYYMMDD format.
4.2 Sample Collection Start Time	The measure of clock time and time zone when collection of the sample was begun, reported as a 24-hour day with 2-digit hour, 2-digit minute, and 2-digit second.
4.3 Sample Collection End Date	The calendar date when collection of the sample was finished, reported as 4-digit year, 2-digit month, and 2-digit day in YYYYMMDD format.
4.4 Sample Collection End Time Measure	The measure of clock time and time zone when collection of the sample was finished, reported as a 24-hour day with 2-digit hour, 2-digit minute, and 2-digit second.
5.0 Sample Location Module	
5.1 Water Body/Aquifer Name	(Alternate Name: Receiving Water Name) Name of the lake, stream, river, estuary, aquifer, reach name in the National Hydrography Dataset or other water feature related to the physical site.
5.1.1 Water Body Use Classification	Designated use classification of the water body sampled, if applicable
5.2 Sample Station Identifier	(Alternate Names: Sampling Station/Facility Identification Number; Site Number, Well Identifier, Site Name) The name or number that uniquely identifies the sample station.
5.2.2 River Mile	River mile where the station is located, if applicable.
5.2.3 Reach	EPA Reach code for where the station is located, if applicable
5.3 Sampling Station Type Name	(Alternate Names: Facility Type; Site Type) The descriptive name for a type of sampling station. The valid sampling facility choices are: <ul style="list-style-type: none"> (a) Ambient <ul style="list-style-type: none"> (i) River/Stream <ul style="list-style-type: none"> Drainage Irrigation Transport (ii) Canal (iii) Lake (iv) Wetland <ul style="list-style-type: none"> Estuarine, emergent Estuarine, forested Estuarine, scrub-shrub Lacustrine, emergent Palustrine, emergent Palustrine, forested Palustrine, moss-lichen Palustrine, shrub-scrub

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	<ul style="list-style-type: none"> Riverine, emergent Constructed (v) Reservoir (v) Riverine Impoundment (vi) Estuary (vii) Tidal Fresh (viii) Tidal Brackish (ix) Ocean (x) Great Lake (xi) Subsurface <ul style="list-style-type: none"> (A) Well (B) Spring (xii) Subsurface unsaturated/vadose zone (xiii) Spring
	<ul style="list-style-type: none"> (b) Water Supply/Source Influent <ul style="list-style-type: none"> (i) Raw/untreated water (drinking/com/ind) (ii) Finished/treated water for drinking <ul style="list-style-type: none"> (A) From treatment system (B) Entry Point to the distribution system after treatment (C) Within the distribution system (D) End of the distribution system with longest residence time (E) Point in distribution system with lowest disinfection residual (F) Household/drinking water tap (iii) Unknown (comment field) (c) Within treatment process (comment field) (d) Wastewater/Effluent <ul style="list-style-type: none"> (i) End of pipe (ii) Within mixing zone (iii) Downstream from mixing zone (iv) Upstream from mixing zone (e) Storm Sewer (f) Combined Sewer (g) Land Runoff
5.4 Latitude Measure	(Alternate Names: Latitude; Latitude of Sampling Station) The measure of the angular distance on a meridian north or south of the equator in degrees, and decimal degrees.
5.5 Longitude Measure	(Alternate Names: Longitude; Longitude of Sampling Station) The measure of the angular distance on a meridian east or west of the prime meridian in degrees, and decimal degrees.

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5.6 Horizontal Reference Datum	The code that represents the reference datum used in determining latitude and longitude coordinates. Can include the NAD27 North American Datum of 1927, the NAD83 North American Datum of 1983, the World Geodetic System of 1984, or other entries as applicable
6.0 Sample Collection Module	
6.1 Sample Type	<p>(Alternate Names: Quality Control Sample Type) The type of sample being described. Permitted values include:</p> <ul style="list-style-type: none"> (1) Field Measurement/Observation <ul style="list-style-type: none"> (a) Routine Measurement/ Observation (b) Replicate Measurement/Observation (2) Sample <ul style="list-style-type: none"> (a) Routine Sample (b) Field Blank (c) Field Replicate (d) Depletion Replicate (e) Integrated Time Series (f) Integrate Flow Proportioned (g) Integrate Horizontal Profile (h) Integrated Vertical Profile (i) Composite Without Parents (j) Positive Control (Microbio.) (k) Negative Control (Microbio.) (l) Other entries as applicable (3) Sample Created from Sample (No subtypes recommended) (4) Composite Sample with Parents (No subtypes recommended) (5) Quality Control Sample <ul style="list-style-type: none"> (a) Trip blank (b) Reagent Blank (c) Equipment Blank (d) Pre-preserved Blank (e) Post-preserved Blank (f) Field Spike (g) Field Blank (h) Reference Sample (i) Measurement Precision Sample (j) Other entries as applicable
6.1.1 Assemblage Sampled	The type of biological assemblage sampled (e.g., fish, periphyton, macroinvertebrates, etc.)
6.2 Media Sampled	<p>(Alternate Names: Sample Medium Code, Water Source Type, Water Body Type) The environmental media sampled at a site. The environmental material about which results are reported from either direct observation or collected samples. Includes water, sediment,</p>

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6.3 Sample Ambient Condition(s)	<p>tissue, and other entries as applicable.</p> <p>For physical and/or water quality characteristics measured <i>in situ</i> at the time of the survey, refer to the following elements in the Chem/Micro data Elements list:</p> <p>2.1 Parameter Value</p> <p>2.1.1 Unit of measure</p> <p>2.2.2 Parameter name</p> <p>3.0 Reason for sampling</p> <p>6.0 sample type</p> <p>6.2 Media sampled</p> <p>6.5.2 Instrument used</p> <p>For samples collected for detailed chemical analysis, refer to the Chem/Micro Data Elements modules 6.0 and 7.0</p>
6.4 Sample Identification	<p>(Alternate Names: Sample Number, Sample Identification Number) The unique name, number, or code assigned to identify the sample.</p>
6.5 Sample Collection Method	
6.5.1 Sample Collection Device	<p>Name of the field gear used for sampling e.g. D-frame net, artificial substrate, seine, electroshocker</p>
6.5.2 Area or Volume Sampled	<p>Area of media sampled; e.g. 1 m² of stream bottom</p>
6.5.3 Written Sampling Method Citation	<p>Reference citation (preferably published) for sampling method used.</p>
6.5.4 Certification/Training Status Of Sampler Personnel	<p>Text providing any certification or experience level of personnel sampling: e.g. agency-trained/certified personnel.</p>
6.5.5 Sample Composite Method	<p>Text indicating the way in which samples were composited in the field prior to processing, if any: e.g. Depth-integrated composite, time-integrated composite, area-integrated, habitat-integrated, none.</p>
6.6 Sample Processing	
6.6.1 Field Or Lab Processing	<p>Indicate whether samples were processed in the field or lab. For samples preserved for transport to lab, begin at 6.6.2. For samples processed in situ, go to 6.6.9.</p>
6.6.2 Container type	<p>For microbiological/plankton/algal samples; See Chemical/Microbiology Data Elements</p>
6.6.3 Container color	<p>For microbiological/phytoplankton/algal samples; See Chem/Micro Data Elements</p>
6.6.4 Container size	<p>For microbiological/plankton/algal samples; See Chemical/Microbiology Data Elements</p>
6.6.5 Sample collection filtering code	<p>For microbiological /plankton/algal samples; See Chemical/Microbiology Data Elements</p>
6.6.6 Sample collection filtering comment text	<p>For microbiological /plankton/algal samples; See Chemical/Microbiology Data Elements</p>

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6.6.7 Sample Volume	For microbiological /plankton/algal samples; See Chemical/Microbiology Data Elements
6.6.8 Sample Weight Collected	For microbiological /plankton/algal samples; See Chemical/Microbiology Data Elements
6.6.9 Preservation method	<p>The method used to preserve the sample in the field by the sampling entity.</p> <ul style="list-style-type: none"> (a) Chemical added <ul style="list-style-type: none"> (1) Ethanol (2) Formalin (3) Other (comment field) (b) Temperature preservation <ul style="list-style-type: none"> (i) Wet Ice (4 deg C) (ii) Dry Ice (-78.5 deg C) (iii) Cold Packs (4 deg C) (iv) Refrigerated (4 deg C) (v) Frozen (0 deg C) (vi) Frozen (-20 deg C) (vii) Frozen (-50 deg C) (viii) Freeze Dried (c) None (d) Other entries as applicable
6.6.10 Initial Device Used	Indicate equipment used for initial processing such as screens, sieves, splitters.
6.6.11 Subsampling Method	Text indicating method used to obtain subsamples for testing, if any: random aliquot
6.6.12 Homogenization Method	Text indicating how sample was mixed prior to processing, if any: shaker, manual stirring?
6.6.13 Compositing Method	Text indicating the way in which samples were composited during processing, if any.
6.6.14 Written Protocol Citation	Citation for method used in sample processing.
6.6.15 Sample Storage Time	Time, in days, over which sample was stored prior to processing.
7.0 Sample Analysis and QC Module	
7.1 Organism Identification	
7.1.1 Field or lab identification	Indicate whether organisms were taxonomically identified in the field or lab
7.1.2 Device used	Indicate equipment used for identification such as hand lens, dissecting scope
7.1.3 Organism Preparation	Indicate how organisms were prepared prior to identification: dissection, slide-mounting, rose bengal staining, etc.
7.1.4 Organism Classification	
7.1.4.1 Taxonomic resolution	Indicate taxonomic level to which organisms are identified
7.1.4.2 Taxonomic Citations	Taxonomic keys (preferably published) used as references in the identification process
7.1.4.3 Taxonomic Identifier	(Alternate Names: ITIS Taxonomic Serial Number, ICTVdB Taxon Identifier, EPA Biological Registry System Number, NODC Taxa Code, ANSP ID)

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	The unique identification number assigned by either the Integrated Taxonomic Information System, (ITIS), the EPA Biological Registry System, National Oceanographic Data Commission, or Academy of Natural Sciences.
7.1.4.4 Taxonomic name	(Alternate Names: Biological Vernacular Name Common Name)
7.1.4.5 Taxonomic verification procedures	Text describing how taxonomic identifications are confirmed and cross-checked
7.1.4.6 Taxonomic QC measure	e.g., % agreement in QC samples
7.1.4.7 QA/QC Exception Flags (Test Acceptability Criteria Met?)	See Chemical/Microbiology Data Elements
7.1.4.8 QA/QC Exception Comment (Test Acceptability Notes)	Text indicating any comments or clarifications concerning how the data met or didn't meet certain acceptability criteria
7.1.4.9 QA/QC Comment Field	
7.2 Data Measurements	Quantitative measures of individual organisms (refer to ChemMicro Data Elements module 7.Y)